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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,669	09/30/2003	Mario Elmen Tremblay	8598MR	5011
27752 7590 01/08/2008 THE PROCTER & GAMBLE COMPANY INTELLECTUAL PROPERTY DIVISION - WEST BLDG. WINTON HILL BUSINESS CENTER - BOX 412 6250 CENTER HILL AVENUE CINCINNATI, OH 45224			EXAMINER ZHENG, LOIS L	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 01/08/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/674,669

Applicant(s)

TREMBLAY ET AL.

Examiner

Lois Zheng

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 31 October 2007 has been entered.

Status of Claims

2. Claims 1, 9 and 15 are amended in view of claim amendments filed 31 October 2007. New claims 16-19 are added in view of applicant's amendments. Therefore, claims 1-19 are currently under examination.

Means-Plus-Function Language

3. Instant claims 1 and 9 contain the flowing terms written in means-plus-function format, and have been interpreted as follows:

“means for locally delivering a halogen dioxide salt to an aqueous feed solution inlet stream” is in proper means-plus-function format and is defined in new claims 16-17.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kelley US 6,306,281 B1(Kelley).

Kelley teaches an electrolytic apparatus for the generation of chlorine dioxide(abstract). The apparatus comprises an aqueous sodium chlorite feed solution(col. 2 lines 55-61), a non-membrane electrolysis cell comprising an anode, a cathode, an inlet, an outlet(Fig. 1) and a power source connected to the anode and the cathode(col. 3 lines 18-21), thereby providing current through the aqueous feed solution.

Regarding claim 1, the inlet, the gap between the anode and the cathode of Kelley reads on the claimed passage for the feed solution adjacent to the anode. The inlet in the electrolytic apparatus of Kelley is capable of receiving aqueous feed solution stream and the outlet in the apparatus of Kelly is capable of discharging halogen dioxide containing effluent as claimed.

In addition, although Kelley teaches that the sodium chlorite is present in the feed at a concentration ranged of 0.01-5.0wt% (col. 3 lines 26-27), which overlaps the claimed concentration range of about 10ppm to about 1000ppm, the claimed concentration limitations on the aqueous feed solution and the effluent do not render the instant apparatus claims patentable because they are directed to a material that is worked on by the instantly claimed apparatus. As stated in MPEP 2115, it is well settled that "Expressions relating the apparatus to contents thereof during an intended

operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Kelly further shows in various examples that its apparatus is capable of electrolyzing feed solutions with various sodium chlorite concentrations and produces a wide range of different final chlorine dioxide concentrations. Since the structure of Kelley's chlorine dioxide generating apparatus is the same as claimed apparatus and is capable of working with a wide variety of feed sodium chlorite concentrations and producing a wide variety of chlorine dioxide concentrations as desired, the examiner concludes that the apparatus of Kelley is inherently capable of working with the claimed aqueous feed solution concentration and produce the claimed effluent concentration.

With respect to the amended means for locally delivering halogen dioxide salt to an aqueous feed solution inlet stream, Example 5 of Kelley further teaches that sodium chlorite containing electrolyte solution is prepared and passed through the electrolysis cell(col. 6 lines 60-64), which implies the use of a container for storing the prepared electrolyte and use of proper feeding equipment to pass the prepared electrolyte to the inlet of the electrolytic cell. Therefore, the examiner asserts that Kelley inherently teach the claimed means for locally delivering halogen dioxide salt to an aqueous feed solution inlet steam as claimed.

Regarding new claim 16, the container used to store prepared electrolyte inherently taught by Kelley reads on the claimed reservoir in fluid communication with the aqueous feed solution stream.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley, and further in view of Spence US 4,414,070(Spence).

The teachings of Kelley are discussed in paragraph 5 above. However, Kelley does not explicitly teach the claimed gap between the anode and the cathode.

Spence teaches that the efficiency of electrolytic cells is dependent upon the anode-cathode distance, and that as the distance decreases the efficiency increases (col. 1, lines 24-29). Therefore, Spence's teaching shows that the gap between an anode and a cathode is a result effective variable.

Therefore, it would have been obvious to one of ordinary skill in the art to have routinely optimized the gap between the anode and the cathode in the electrolysis cell of Kelley as suggested by Spence to achieve a minimized spacing, such as 0.5 mm or less as claimed, in order to maximize the cell efficiency as taught by Spence.

8. Claims 3-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley, and further in view of Kaczur et al. US 5,106,465(Kaczur).

The teachings of Kelley are discussed in paragraph 5 above. Kelley further teaches the use of a dimensionally stable platinum coated titanium anode(col. 3 lines 13-18).

However, Kelley does not explicitly teach that the metal anode is porous.

Kaczur also teaches an electrolytic cell for the generation of chlorine dioxide (abstract). Kaczur further teaches the use of a porous platinum coated titanium anode(col. 4 lines 41-63).

Regarding claim 3, it would have been obvious to one of ordinary skill in the art to have incorporated the porous platinum coated titanium anode of Kaczur into the electrolytic apparatus of Kelley in order to utilize the high surface contact area due to the porosity of the anode and achieve high corrosion resistance as taught by Kaczur(col. 4 lines 44-45 and 57-60).

Regarding claims 4-5 and 7-8, Kaczur further teaches that chlorine dioxide is widely used as a disinfectant in water treatment/purification(col. 1 lines 16-19).

Therefore, it would have been obvious to one of ordinary skill in the art to have established an interface between the chlorine dioxide generator of Kelley and any appliances that requires water disinfecting and purification, such as the claimed water purifier, water fountains, refrigerators, etc. in order to effectively purify water as taught by Kaczur before consumption. In addition, the connection between the electrolytic cell and the water inlet of the appliance and the water/ice dispensing device of the appliance

would have inherently been present in the apparatus of Kelley in view of Kaczur in order to purify untreated water into the appliance and convert it into purified water being dispensed for consumption.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Kaczur, and further in view of DE 100 17 407 A1 (DE'407).

The teachings of Kelley in view of Kaczur are discussed in paragraph 8 above. However, Kelley in view of Kaczur do not explicitly teach that the halogen dioxide generator is interfaced with an appliance via a connection of water inlet line to the inlet of the electrolytic cell and an connection of an outlet line from the outlet of the electrolysis cell to the inlet of the appliance.

DE'407 teaches an electrolytic apparatus for continuously treating/purifying water via electrolysis of chlorine dioxide from sodium chlorite (page 4 paragraph 0016, pages 5-6 paragraph 0021).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the continuous water treatment of DE'407 into the apparatus of Kelley in view of Kaczur in order to achieve simple handling, safe production and reduced cost as taught by DE'407 (page 4 paragraph 0016).

Regarding claim 6, the feed line as taught by Kelley in view of Kaczur and DE'407 reads on the claimed connection of a water inlet line. In addition, it would have been obvious to one of ordinary skill in the art to have added the claimed connection from the outlet of the electrolytic cell to the inlet of an appliance as claimed in order to allow the consumption of purified water in various appliances.

10. Claims 9-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Kaczur, and further in view of Cowley et al. US 5,965,004(Cowley), and further in view of DE '407.

The teachings of Kelley in view of Kaczur are discussed in paragraph 8 above. Kaczur further teaches that a thin protective spacer can be provide for use of expanded metal anode and to provide gas release zone for the cathode(col. 8 lines 6-13 and 28-30). In addition, example 9 of Kaczur further teaches using three layer of polypropylene spacer material to distribute the electrolyte feed and to provide support for the membrane(col. 10 lines 56-59).

Regarding claim 9, it would have been obvious to one of ordinary skill in the art to have incorporated the one or more layers of polypropylene spacer material as taught by Kaczur into the electrolytic cell of Kelley in view of Kaczur in order to distribute the electrolyte feed, provide use of the expanded metal anode and provide a gas release zone for the cathode as taught by Kaczur. In addition, the spacer material can also be used as support structure to stabilize the anode and cathode in the electrolytic cell of Kelley in view of Kaczur.

However, Kelley in view of Kaczur do not explicitly teach the claimed non-conducting porous flow barrier separating the anode and the cathode and the claimed return passage for returning the depleted effluent back to the source.

Cowley teaches an electrolytic cell for generating chlorine dioxide(abstract). Cowley further teaches recycling or reverting the remaining processing fluid after electrolysis back to the feed tank containing sodium chlorite solution(Fig. 1, #42).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the recirculation setup of Cowley into the electrolytic cell of Kelley in view of Kaczur in order to achieve a highly efficient, continuous and effluent free operation as taught by Cowley(col. 1 line 62 – col. 2 line 2).

DE'407 teaches that chlorine dioxide is reduced to chlorite when treating water (page 6 paragraph 0021). Therefore, one of ordinary skill in the art would have found the claimed reversion to halogen dioxide salt(i.e. chlorine dioxide salt) from halogen dioxide(i.e. chlorine dioxide) inherently taking place when the electrolytic apparatus of Kelley in view of Kaczur and Cowley is in use in light of the teachings of DE'407.

Regarding claim 9, the remaining claim limitations are rejected for the same reasons as stated in the rejection of claim 1 above. The apparatus of Kelly in view of Kaczur, Cowley and DE'407 is capable of converting "a portion of halogen dioxide salt in the passage to halogen dioxide, and thereby forms an aqueous effluent comprising halogen dioxide" as claimed. In addition, the porous anode of Kelly in view of Kaczur, Cowley and DE'407 is capable of allow at least a portion of the aqueous feed solution flows in a cross direction to a flow of electricity between the anode and the cathode as claimed. Furthermore, the multi-layer polypropylene spacer material as taught by Kelly in view of Kaczur, Cowley and DE'407 is capable of restricting flow of the electrolyte solution in a cross direction to the flow of electricity between the anode and the cathode as claimed.

Regarding claims 10-11 and 13-14, Cowley further teaches that chlorine dioxide can be used for water purification(col. 1 lines 11-14). Therefore, it would have been

obvious to one of ordinary skill in the art to have established an interface between the chlorine dioxide generator of Kelley in view of Kaczur, Cowley and DE'407 and any appliances that requires water disinfecting and purification, such as the claimed water purifier, water fountains, refrigerators, etc. in order to effectively purify water as taught by Cowley before consumption. In addition, the claimed connection between the electrolytic cell and the water inlet of the appliance and the water/ice dispensing device of the appliance would have inherently been present in the apparatus of Kelley in view of Kaczur, Cowley and DE'407 in order to purify untreated water into the appliance and convert it into purified water being dispensed for consumption.

Regarding claim 12, the instant claim is rejected for the same reason as stated in the rejection ground of instant claim 6 above.

Regarding claim 17, the instant claim is rejected for the same reason as stated in the rejection ground of instant claim 16 above.

Regarding claim 18, the layers of polypropylene spacer material as taught by Kelley in view of Kaczur, Cowley and DE'407 reads on a plurality of objects packed into the chamber between the anode and the cathode as claimed.

11. Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Kaczur, Cowley and DE '407 and further in view of Zappi et al. US 6,328,875 B1(Zappi).

The teachings of Kelley in view of Kaczur, Cowley and DE'407 are discussed in paragraph 10 above.

Regarding claim 15, the instant claim is mostly rejected for the same reasons as stated in the rejection of claims 1 and 9 above. However, Kelley in view of Kaczur, Cowley and DE'407 do not explicitly teach the claims pump connecting the reservoir and the passage.

Zappi teaches an electrolysis cell for purifying contaminated water(abstract). Zappi further teaches that its electrolysis cell can also be used for electrochemical synthesis of chlorine dioxide(col. 8 lines 53-62). Zappi's electrolysis cell includes non-conductive porous mesh spacers positioned between the electrodes to provide desired inter-electrode spacing(Fig. 4 numeral 23, col. 10 lines 18-21, col. 12 lines 32-38). Zappi further teaches pumping means for pumping the feed to the electrolysis cell(col. 3 lines 29-32 and 59-61).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated a pump as taught by Zappi into the apparatus of Kelley in view of Kaczur, Cowley and DE'407 in order to directing feed solution to the electrolysis cell.

Regarding claim 19, the instant claim is rejected for the same reason as stated in the rejection of claim 18 above.

12. Claims 9-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Kaczur, and further in view of Sampson et al. US 6,024,850(Sampson), and further in view of Cowley et al. US 5,965,004(Cowley), and further in view of DE '407.

The teachings of Kelley in view of Kaczur are discussed in paragraph 8 above. However, Kelley in view of Kaczur do not explicitly teach the claimed non-conducting

porous flow barrier separating the anode and the cathode and the claimed return passage for returning the depleted effluent back to the source.

Sampson teaches an electrolysis cell that uses a packed bed of ion exchange material of different sizes(Fig. 1 #16) in the passage between the anode and the cathode in order to significantly increase the ability to oxidize and reduce the species to be treated in an electrolytic cell(abstract).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the ion exchange material as taught by Sampson into the electrolysis apparatus of Kelley in view of Kaczur in order to significantly increase the ability to oxidize and reduce the treated species in an electrolytic cell as taught by Sampson.

Cowley teaches an electrolytic cell for generating chlorine dioxide(abstract). Cowley further teaches recycling or reverting the remaining processing fluid after electrolysis back to the feed tank containing sodium chlorite solution(Fig. 1, #42).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the recirculation setup of Cowley into the electrolytic cell of Kelley in view of Kaczur and Sampson in order to achieve a highly efficient, continuous and effluent free operation as taught by Cowley(col. 1 line 62 – col. 2 line 2).

DE'407 teaches that chlorine dioxide is reduced to chlorite when treating water (page 6 paragraph 0021). Therefore, one of ordinary skill in the art would have found the claimed reversion to halogen dioxide salt(i.e. chlorine dioxide salt) from halogen dioxide(i.e. chlorine dioxide) inherently taking place when the electrolytic apparatus of

Kelley in view of Kaczur, Sampson and Cowley is in use in light of the teachings of DE'407.

Regarding claim 9, the remaining claim limitations are rejected for the same reasons as stated in the rejection of claim 1 above. The apparatus of Kelly in view of Kaczur, Sampson, Cowley and DE'407 is capable of converting "a portion of halogen dioxide salt in the passage to halogen dioxide, and thereby forms an aqueous effluent comprising halogen dioxide" as claimed. In addition, the porous anode of Kelly in view of Kaczur, Sampson, Cowley and DE'407 is capable of allow at least a portion of the aqueous feed solution flows in a cross direction to a flow of electricity between the anode and the cathode as claimed. Furthermore, the packed bed ion exchange material as taught by Kelly in view of Kaczur, Sampson, Cowley and DE'407 is capable of restricting flow of the electrolyte solution in a cross direction to the flow of electricity between the anode and the cathode as claimed.

Regarding claims 10-11 and 13-14, Cowley further teaches that chlorine dioxide can be used for water purification(col. 1 lines 11-14). Therefore, it would have been obvious to one of ordinary skill in the art to have established an interface between the chlorine dioxide generator of Kelley in view of Kaczur, and Sampson, Cowley and DE'407 and any appliances that requires water disinfecting and purification, such as the claimed water purifier, water fountains, refrigerators, etc. in order to effectively purify water as taught by Cowley before consumption. In addition, the claimed connection between the electrolytic cell and the water inlet of the appliance and the water/ice dispensing device of the appliance would have inherently been present in the apparatus

of Kelley in view of Kaczur, Sampson, Cowley and DE'407 in order to purify untreated water into the appliance and convert it into purified water being dispensed for consumption.

Regarding claim 12, the instant claim is rejected for the same reason as stated in the rejection ground of instant claim 6 above.

Regarding claim 17, the instant claim is rejected for the same reason as stated in the rejection ground of instant claim 16 above.

Regarding claim 18, the packed bed of ion exchange material as taught by Kelley in view of Kaczur, Sampson, Cowley and DE'407 reads on a plurality of objects packed into the chamber between the anode and the cathode as claimed.

13. Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Kaczur, Sampson, Cowley and DE '407 and further in view of Zappi et al. US 6,328,875 B1(Zappi).

The teachings of Kelley in view of Kaczur, Sampson, Cowley and DE'407 are discussed in paragraph 12 above.

Regarding claim 15, the instant claim is mostly rejected for the same reasons as stated in the rejection of claims 1 and 9 above. However, Kelley in view of Kaczur, Sampson, Cowley and DE'407 do not explicitly teach the claims pump connecting the reservoir and the passage.

Zappi teaches an electrolysis cell for purifying contaminated water(abstract). Zappi further teaches that its electrolysis cell can also be used for electrochemical synthesis of chlorine dioxide(col. 8 lines 53-62). Zappi's electrolysis cell includes non-

conductive porous mesh spacers positioned between the electrodes to provide desired inter-electrode spacing(Fig. 4 numeral 23, col. 10 lines 18-21, col. 12 lines 32-38).

Zappi further teaches pumping means for pumping the feed to the electrolysis cell(col. 3 lines 29-32 and 59-61).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated a pump as taught by Zappi into the apparatus of Kelley in view of Kaczur, Sampson, Cowley and DE'407 in order to directing feed solution to the electrolysis cell.

Regarding claim 19, the instant claim is rejected for the same reason as stated in the rejection of claim 18 above.

Previous Double Patenting Rejection

The rejection of claims 1-8 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 24, 26-32, 55, 57-62, 63, and 86-93 of copending Application No. 10/027667 in view of DE'407are withdrawn in view of the abandonment of copending Application No. 10/027667 mailed 17 October 2007.

Response to Arguments

14. Applicant's arguments filed 31 October 2007 have been fully considered but they are partially moot in view of the new grounds of rejections as set forth above.

In the remarks, applicant argues that Kelley does not teach the claimed means for locally delivering a halogen dioxide salt solution, which is then introduced to an electrolysis cell, because the electrolyte solution in Kelley is prepared using bench-top methods.

The examiner does not consider applicant's argument persuasive since the size of claimed electrolyte feed delivering means or the claimed reservoir is not within the scope of the invention. The claimed feed delivering means or reservoir can be of commercial size or bench-top size based on the broadest reasonable interpretation. Therefore, the container used to prepare the electrolyte as taught by Kelley, although using bench-top methods, reads on the claimed means for locally delivering a halogen dioxide salt to an aqueous feed solution inlet stream or the claimed reservoir.

Applicant further argues that Kaczur does not disclose "an anode having flow passages such that an aqueous feed solution flows in a cross direction to the flow of electricity between the anode and the cathode.

The electrolyte feed in the electrolytic cell of Kaczur enters the cell in the space between the anode and the cathode, the anolyte and the catholyte also enter the cell in a direction that is parallel to the electrodes. In addition, the anode as taught by Kaczur is porous. Therefore, the examiner asserts that the porous anode in the electrolytic cell of Kaczur comprises electrolyte flow passages in a cross direction to the flow of electricity between the anode and the cathode as claimed.

Applicant further argues that the pipe cell described in Kelley is technically incapable of functioning with Kelley's anode structure due to the use of end caps in Kelley and the extension of the Kelley's anode outside of the electrolytic cell.

The examiner does not find applicant's argument persuasive because one of ordinary skill in the art would have found that the porous anode as taught by Kaczur is directed to the main portion of the anode that is located within the electrolytic cell not to

any portion of the anode that extends outside of the electrolytic cell since the extended portion is used for electrical connection, such as the cathode tab and the anode extension from the electrolytic cell of Kelley and the horizontal cathode and anode extensions in the electrolytic cell of Kaczur. One of ordinary skill in the art would not have expected the horizontal cathode and anode extensions in the electrolytic cell of Kaczur to also be porous since the electrolyte would have leaked from the electrolytic cell which would have rendered Kaczur's electrolytic cell not functioning. By the same reason, one of ordinary skill in the art would have found it obvious that the anode extension of Kelley, when combined with Kaczur, would not be porous in order to maintain the operability of Kelley's electrolytic cell. In addition, the end caps in the electrolytic cell of Kelley would not have provided a barrier to the electrolyte flow through the porous anode because the electrolytic cell of Kelley is equipped with an outlet at the top of the cell which would have allowed the electrolyte passing through the anode to exit from the electrolytic cell.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

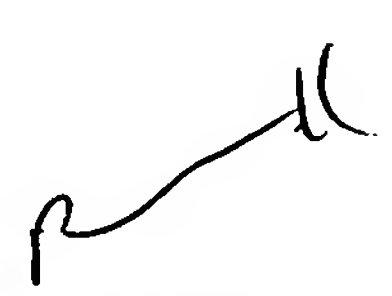
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ


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SUPERVISORY PATENT EXAMINER
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